AUTODOC CLUB

How to change front coil springs on **BMW E90** – replacement guide

VIDEO TUTORIAL



Important!

This replacement procedure can be used for:
BMW 3 Touring (E91) 318d 2.0, BMW 3 Saloon (E90) 318d 2.0, BMW 3 Touring (E91) 316d 2.0, BMW 1 Coupe (E82) 118d 2.0, BMW 3 Coupe (E92) 318i 2.0, BMW 1 Hatchback (E81) 120d 2.0, BMW 3 Saloon (E90) 320i 2.0, BMW 3 Saloon (E90) 325i 2.5, BMW 3 Saloon (E90) 330i 3.0, BMW 3 Saloon (E90) 320d 2.0, BMW 1 Hatchback (E81) 130i 3.0, BMW 3 Touring (E91) 320i 2.0, BMW 3 Touring (E91) 325i 2.5, BMW 3 Touring (E91) 330i 3.0, BMW 3 Touring (E91) 320d 2.0, (+ 32)

The steps may slightly vary depending on the car design.

REPLACEMENT: COIL SPRINGS – BMW E90. LIST OF THE TOOLS YOU'LL NEED:



- Wire brush
- WD-40 spray
- Brake cleaner
- Copper grease
- Combination spanner #13
- Combination spanner #15
- Combination spanner #18
- Combination spanner #22
- Drive socket # 13
- Drive socket # 17
- Drive socket # 18
- Drive socket # 21
- Torx bit T45
- Wheel impact socket #17
- Ratchet wrench
- Torque wrench
- Flat chisel
- Hammer
- Flat Screwdriver
- Hydraulic strut spring compressor
- Hydraulic transmission jack
- Fender cover
- Wheel chock

BUY TOOLS

Replacement: coil springs – BMW E90. AUTODOC recommends:

- Both coil springs of the front suspension should be replaced simultaneously.
- The replacement procedure is identical for the left and right coil springs of the front suspension.
- Please note: all work on the car – BMW E90 – should be done with the engine switched off.

CARRY OUT REPLACEMENT IN THE FOLLOWING ORDER:

1 Secure the wheels with chocks.



2 Loosen the wheel mounting bolts. Use wheel impact socket #17.



3 Raise the front of the car and secure on supports.

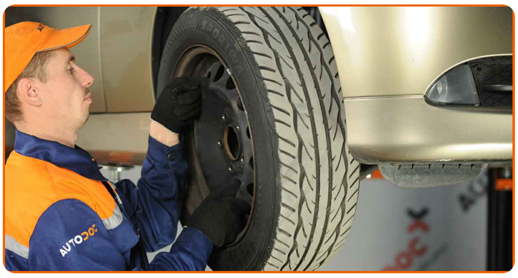
4 Unscrew the wheel bolts.



AUTODOC recommends:

- Warning! To avoid injury, hold the wheel while unscrewing the fastening bolts. BMW E90

5 Remove the wheel.



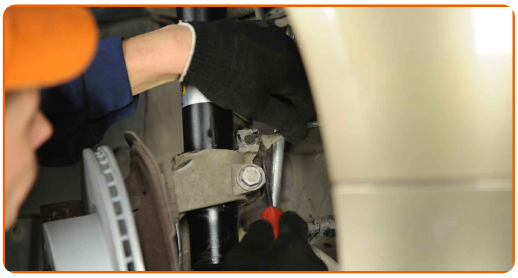
6 Clean the stabiliser link fasteners. Use a wire brush. Use WD-40 spray.

7 Unscrew the fastener connecting the stabilizer link to the shock strut. Use a combination spanner #15. Use a drive socket #17. Use a ratchet wrench.



8 Remove the stabilizer rod.

9 Disconnect the ABS sensor wiring. Use a flat screwdriver.

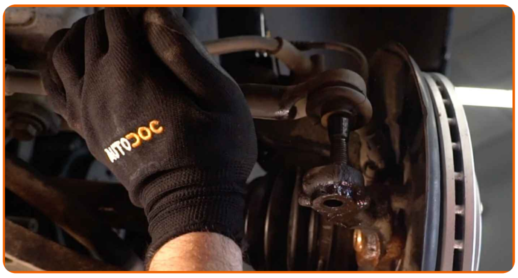


10 Clean the fastener connecting the tie rod end to the steering knuckle. Use a wire brush. Use WD-40 spray.

11 Unscrew the end fastening nut to the steering knuckle. Use a combination spanner #22. Use Torx T45. Use a ratchet wrench.



12 Disconnect the tie rod end from the steering knuckle.



13 Clean the fasteners connecting the control arm to the subframe. Use a wire brush. Use WD-40 spray.

14 Loosen the front fastener of the control arm. Use a combination spanner #18.



15 Unscrew the rear fastener connecting the control arm to the subframe. Use a combination spanner #18 (2 pieces).



16 Remove the rear fastener of the control arm.

17 Clean the fasteners connecting the shock strut to the steering knuckle. Use a wire brush. Use WD-40 spray.

18 Unscrew the lower fastener connecting the shock strut to the steering knuckle. Use a combination spanner #18. Use a drive socket #18. Use a ratchet wrench.

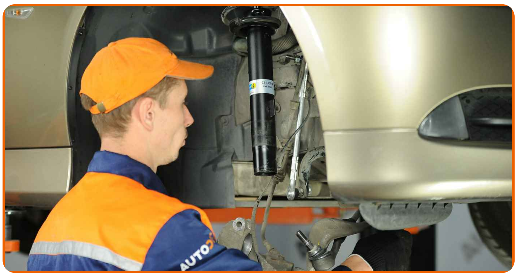


19 Remove the fastening bolt.

20 Release the lower fastener connecting the shock strut to the steering knuckle. Use a flat metal-working chisel. Use a hammer.



21 Disconnect the steering knuckle from the shock absorber strut.



Replacement: coil springs – BMW E90. Tip from AUTODOC experts:

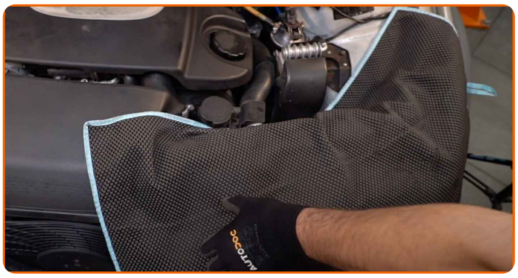
- Make sure that the steering knuckle is supported.

22 Lower the car.

23 Open the bonnet.



24 Use a fender protection cover to prevent damaging paintwork and plastic parts of the car.



25 Clean the fasteners of the shock strut upper mount. Use a wire brush. Use WD-40 spray.

26 Unscrew the top fastening of the shock strut mount. Use a combination spanner #13. Use a drive socket #13. Use a ratchet wrench.



AUTODOC recommends:

- Important! Hold the suspension strut while unscrewing the fastening bolts. BMW E90

27 Remove the suspension strut.



28 Set the shock absorber strut on the spring compressor tool.



Replacement: coil springs – BMW E90. Tip from AUTODOC experts:

- Note that when using a spring compressor, spring coils need to be securely gripped, compressing the spring on the opposite sides.
- Ensure the correct position of the spring in the retainer.
- Make sure that the spring coils tightly entered the lock handles.

29 Compress the spring.

30 Remove the shock strut mount cap. Use a flat screwdriver.



31 Treat the shock strut rod. Use a wire brush. Use WD-40 spray.



32 Remove the strut piston rod nut. Use a drive socket #21. Use a ratchet wrench.



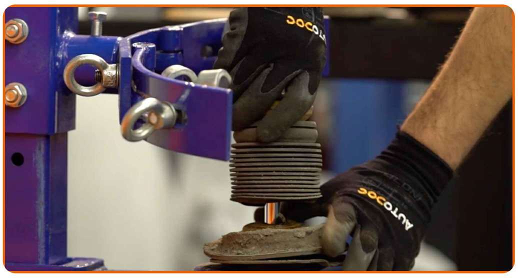
33 Release the coil spring.

34 Remove the top strut mount. Use a flat screwdriver.



35

Remove the shock absorber dust cap and the bump stop.



AUTODOC recommends:

- Replacement: coil springs – BMW E90. Carefully inspect the mount, the boot, and the bump stop of the shock absorber. Replace if necessary.

36

Remove the spring.



37

Install the spring on the shock absorber.



38

Install the boot and a bump stop onto the shock absorber.



39 Compress the spring.

40 Install the upper strut mount and the strut mount bearing. Use a flat screwdriver.



41 Tighten the shock strut piston rod nut. Use a drive socket #21. Use a torque wrench. Tighten it to 64 Nm torque.



Replacement: coil springs – BMW E90. Tip from AUTODOC:

- Check to make sure the spring is positioned correctly. Avoid its misalignment.

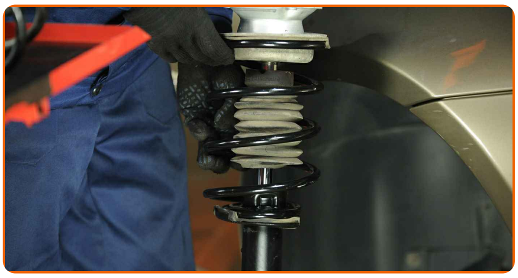
42 Install the shock strut mount cap.



43 Decompress the spring.

44 Remove the assembled shock strut.

45 Install the shock strut into the wheel arch.



46 Screw the top fastening of the shock strut mount.



AUTODOC recommends:

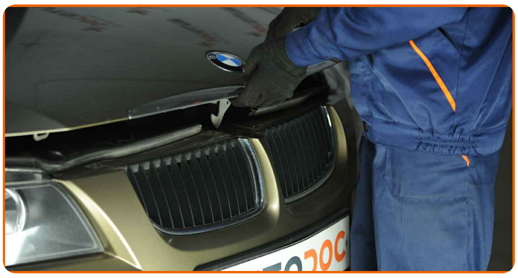
- BMW E90 – To avoid injury, hold the suspension strut while screwing in the fastening bolts.

47 Tighten the upper fastener of the shock absorber strut mount. Use a combination spanner #13. Use a drive socket #13. Use a torque wrench. Tighten it to 34 Nm torque.



48 Remove the fender protection cover.

49 Close the hood.



50 Raise the front of the car and secure on supports.



51 Treat the shock strut mounting seat on the steering knuckle. Use a wire brush. Use WD-40 spray.

52 Fix the shock absorber strut on the steering knuckle. Use a flat metal-working chisel. Use a hammer.



53 Install the fastening bolt.

54 Tighten the lower fasteners connecting the shock strut to the steering knuckle. Use a combination spanner #18. Use a drive socket #18. Use a torque wrench. Tighten it to 81 Nm torque.

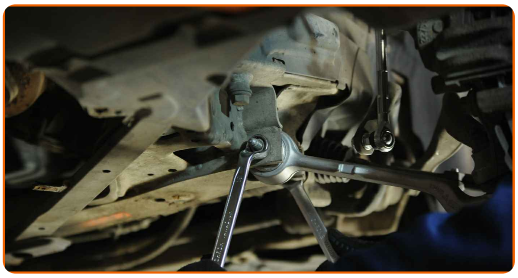


55 Connect the ABS sensor wiring.



56 Install the rear fastener of the control arm.

57 Screw the rear fastener connecting the control arm to the subframe. Use a combination spanner #18 (2 pieces).

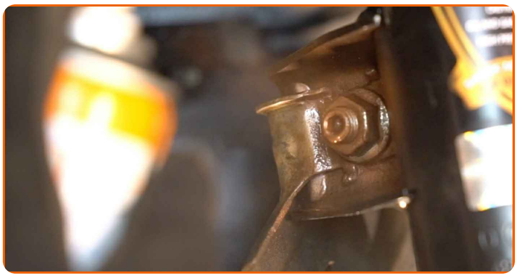


58 Install the transverse stabilizer link.

59 Tighten the fastener connecting the stabilizer link to the shock strut. Use a combination spanner #15. Use a drive socket #17. Use a torque wrench. Tighten it to 58 Nm torque.



60 Treat the shock strut fasteners. Use copper grease.



61 Connect the tie rod end to the steering knuckle.

62 Tighten the fastening nut connecting the tie rod end to the steering knuckle. Use a combination spanner #22. Use Torx T45. Use a torque wrench. Tighten it to 165 Nm torque.



AUTODOC recommends:

- Important! Be sure to use new fasteners.

63 Prop up the steering knuckle. Use a hydraulic transmission jack.



64 Tighten the front fastener connecting the control arm to the subframe. Use a combination spanner #18. Use a torque wrench. Tighten it to 68 Nm torque.+90°



AUTODOC recommends:

- Important! Be sure to use new fasteners.

65 Tighten the rear fastener of the control arm. Use a combination spanner #18 (2 pieces). Use a torque wrench. Tighten it to 68 Nm torque.+90°



AUTODOC recommends:

- Important! Be sure to use new fasteners.

66 Treat all joints of the arm. Use copper grease.

67 Remove the support from under the steering knuckle.



AUTODOC recommends:

- BMW E90 – Do not lower the transmission jack sharply to avoid damaging components and mechanisms of the car.

68 Treat the surface where the brake disc contacts the wheel rim. Use copper grease.



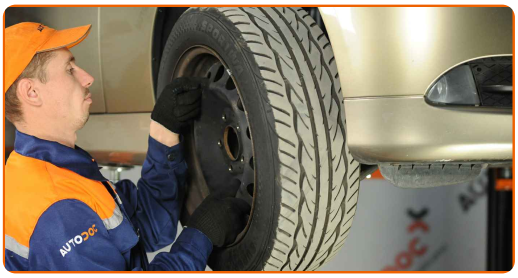
69 Clean the brake disk surface. Use a brake cleaner.



AUTODOC recommends:

- Replacement: coil springs – BMW E90. After applying the spray, wait a few minutes.

70 Install the wheel.



AUTODOC recommends:

- Warning! To avoid injury, hold the wheel while screwing in the fastening bolts on the car. BMW E90

71 Screw in the wheel bolts. Use wheel impact socket #17.



72 Lower the car and working in a cross order, tighten the wheel bolts. Use wheel impact socket #17. Use a torque wrench. Tighten it to 120 nm torque.



73 Remove the jacks and chocks.

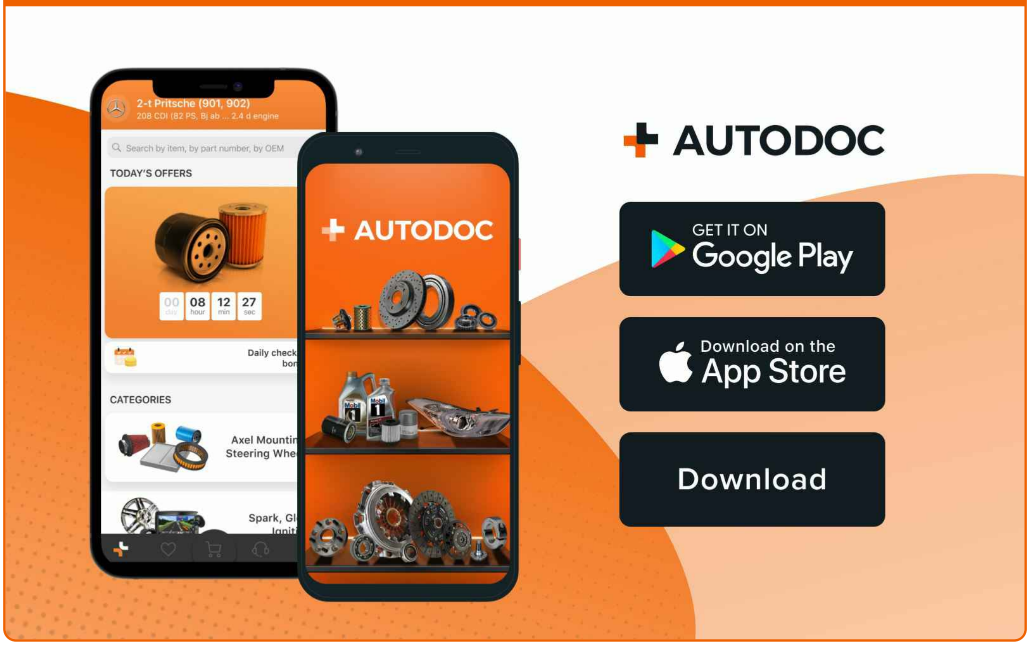


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